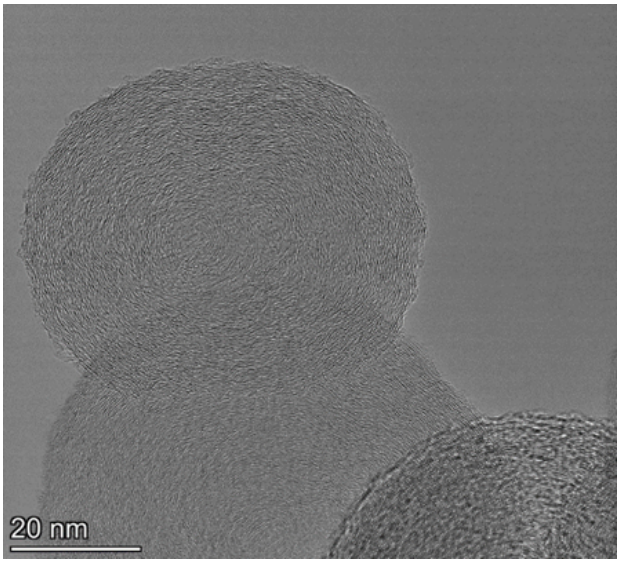
Graphene oxide. C:95%/O:5% **Product Data Sheet**

DESCRIPTION:

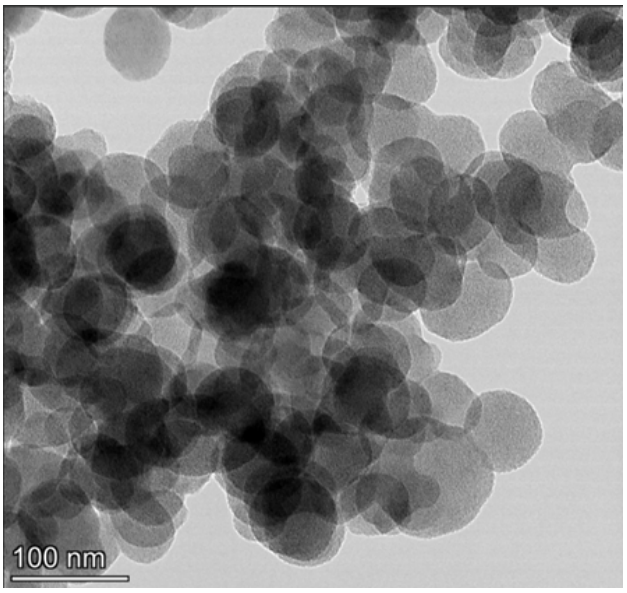
The material is **a weakly oxidized graphene** obtained from **onion-shaped graphene (CNO)** . It is **a nanoscale powder** that disperses well in water and organic solvents.

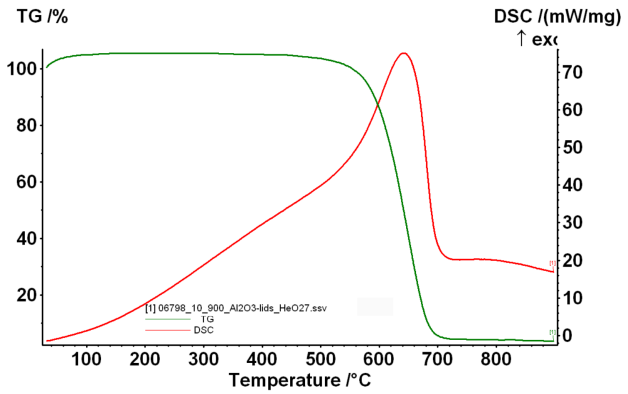
Source material: Onion graphene (CNO):



Carbon Nano Onions (CNO) are spherical nanoparticles with a concentric multilayer structure composed of graphene shells.

- **Particle size:** 30–60 nm
- **Number of layers:** 40–90 graphene layers
- **Purity:** >99.5%
- **BET:** 130 m^2/g





GRAPHENE OXIDE. C:95%/O:5%

Due to oxidation and an increase in interlayer spacing along the outer radius, the particle size increases to 50–80 nm (from the initial 30–60 nm). This increase is due to the appearance of oxygen groups and loosening of the structure.

Specifications:

- **Particle size:** 50–80 nm
- **Number of layers:** 30–80 graphene layers
- **BET:** 150-200 m^2/g

The quantitative analysis of the elemental composition presented in Table 1 confirms that the main components are:

- **Carbon (C):** 94.81% by atoms (Atomic%).
- **Oxygen (O):** 5.00% by atoms (Atomic%).

Also present in small quantities (less than 0.2% each) are impurities such as Fe, Mn, Si, S, Al, Cl, K, Mg, and Ar. These impurities are due to traces of chemicals used in oxidation, as well as atmospheric dust particles, and can be reduced by implementing clean production practices.

Energy Dispersive X-ray Analysis (EDS):

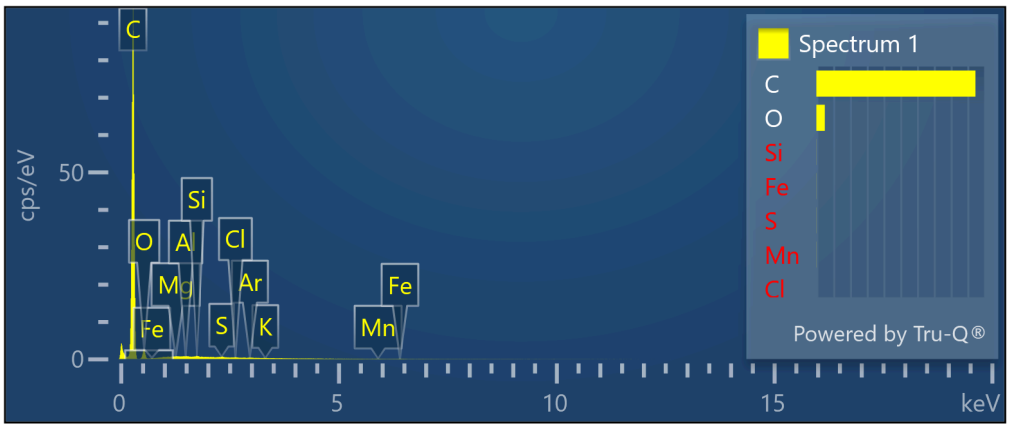


Table 1. Quantitative analysis of elemental composition. The oxygen content in the sample is 5.00% by atoms. The amount of impurities does not exceed 0.2%.

Spectrum 1						
Element	Signal Type	Line	Wt%	Wt% Sigma	Atomic %	Standard Name
C	EDS	K series	92.87	0.14	94.81	C Vit
O	EDS	K series	6.53	0.12	5.00	SiO2
Mg	EDS	K series	0.01	0.01	0.01	MgO
Al	EDS	K series	0.03	0.01	0.01	Al2O3
Si	EDS	K series	0.08	0.01	0.03	SiO2
S	EDS	K series	0.08	0.01	0.03	FeS2
Cl	EDS	K series	0.06	0.01	0.02	NaCl
Ar	EDS	K series	0.05	0.02	0.01	Ar (v)
K	EDS	K series	0.02	0.02	0.01	KBr
Mn	EDS	K series	0.12	0.03	0.03	Mn
Fe	EDS	K series	0.15	0.04	0.03	Fe
Total			100.00		100.00	